

REMARKS

Claims 1-53 are pending in the present Application. Claims 5, 13, 20, 26, 33, 40, 48 have been canceled and claims 1, 10, 17, 23, 30, 37, 45, 52, and 53 have been amended, leaving Claims 1-4, 6-12, 14-19, 21-25, 27-32, 34-39, 41-47, and 49-53 for consideration upon entry of the present Amendment. Support for the amendments to the claims can be found in the canceled claims. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1, 2, 4, 7-10, 12, 15-16, 30, 32, 34-35, 37, 39, 42-44, and 52-53 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by or in the alternative, under 35 U.S.C. 103(a) as obvious over United States Patent No. 4,927,859 to Weber et al. (Weber). Applicants respectfully traverse this rejection.

Weber discloses expandable polymers in particle form. The expandable polymers comprise a styrene polymer, a polyphenylene ether and a blowing agent mixture (Abstract). The blowing agent mixture comprises a blowing agent having an insignificant plasticizing effect and a blowing agent having an important plasticizing effect (Col. 2, line 67 to Col. 3, line 2). The plasticizing blowing agent reduces the softening point of the mixture of polystyrene and polyphenylene ether (Col. 3, lines 27-41). The composition may optionally comprise a flameproofing agent and suitable flameproofing agents include triphenylphosphine oxide (Col. 3, lines 42-49). The expandable polymers are prepared by impregnating particles in an aqueous suspension with the blowing agent mixture at elevated temperatures and under superatmospheric pressure (Col. 3, lines 59-63).

The independent claims have been amended to require the polystyrene to have a molecular weight less than or equal to about 240,000 atomic mass units. Weber describes the polystyrene at Column 2, lines 36-57. Weber does not teach the molecular weight of the polystyrene. To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Applicants

respectfully assert that Weber cannot anticipate the pending claims because Weber does not teach use of a polystyrene having a molecular weight less than or equal to about 240,000 atomic mass units.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 3, 5, 11, 13, 31, 33, 38 and 40 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with United States Patent No. 4,350,793 to Schmidt (Schmidt). Applicants respectfully traverse this rejection.

Weber has been described above. Schmidt discloses a flame retardant composition comprising an admixture of polyphenylene ether and polystyrene and a thermoplastic aromatic polyphosphonate. (Abstract) By using the thermoplastic aromatic polyphosphonate Schmidt seeks to produce a polymer blend which has a higher heat distortion point that is higher than a comparable blend which uses a different flame retardant such as a triaryl phosphate. (Col. 1, lines 35-44) Schmidt describes the thermoplastic aromatic polyphosphonate in great detail and the polyphenylene ether and polystyrene in somewhat less detail. However, Schmidt does disclose that the polystyrene may have a weight average molecular weight between 100,000 and 10^6 . (Col. 6, lines 8-9) Schmidt goes on to say that the composition may further comprise conventional additives such as reinforcing agents, pigments and stabilizers (Col. 6, lines 58-62) but does not teach or suggest blowing agents. Schmidt goes on to describe flame retardancy in terms of UL94 VO, VI and VII ratings which apply only to non-foamed materials. (Col. 8, lines 5-43) Schmidt indicates that the flame retardant composition is intended for injection molding. (Col. 8, lines 44-53) Schmidt does not teach or suggest any other type of processing or forming methods for the flame retardant thermoplastic composition.

As understood by one of ordinary skill in the art the concerns regarding injection molding materials and foamed materials is different. Melt flow is an important consideration in injection molding materials because the melted material must flow to fill the part mold. It has long been known to use lower molecular weight polystyrene as a melt flow modifier in polyphenylene ether compositions for injection molding. In contrast, melt flow is of less

concern in foamed materials and typically distribution of the blowing agent and other factors associated with foaming such as those taught by Schmidt are of concern. More specifically, in expandable particulate materials melt flow has little or no relevance in processing because the expandable particulate materials expand to fill a mold and have little or no need to flow.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Applicants respectfully assert that neither Weber nor Schmidt nor the knowledge of the art generally available at the time of the invention contain any suggestion or incentive to employ a polystyrene having a molecular weight as taught by Schmidt in the composition of Weber.

Claims 14, 17, 19, 21-23, 25 and 27-29 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with United States Patent No. 4,857,390 to Allen et al. (Allen). Applicants respectfully traverse this rejection.

As mentioned above Weber does not teach use of a polystyrene having a molecular weight less than or equal about 240,000 atomic mass units. Allen does not rectify this deficiency. A *prima facie* case of obviousness has not been made because the references do not disclose all the elements of the pending claims.

Claims 18, 20, 24 and 26 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with Allen and further in combination with Schmidt. Applicants respectfully traverse this rejection.

The combination of Weber and Schmidt has been discussed above. Allen does not

provide motivation for the incorporation of the polystyrene of Schmidt into the composition of Weber. Applicants respectfully request withdrawal of this rejection.

Claims 1, 2, 4, 7-10, 12, 15-16, 30, 32, 34-35, 37, 39, 42-44 and 52-53 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with United States Patent No. 5,000,891 to Green (Green). Applicants respectfully traverse this rejection.

Green has been cited for its teaching regarding processes for preparing expandable materials. Greene does not disclose a molecular weight for the polystyrene and hence Green does not rectify the deficiencies of Weber. A *prima facie* case of obviousness has not been made.

Claims 3, 5, 11, 13, 31, 33, 38 and 40 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with Schmidt and further in combination with Green. Applicants respectfully traverse this rejection.

The combination of Weber and Schmidt is discussed above. Green is directed to methods of preparing expandable polystyrene pellets and does not provide any incentive to use the polystyrene of Schmidt in the composition of Weber.

Claims 14, 17, 19, 21-23, 25 and 27-29 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with Allen and further in combination with Green. Applicants respectfully traverse this rejection.

Neither Allen nor Green rectifies the deficiencies of Weber. A *prima facie* case of obviousness has not been made.

Claims 18, 20, 24 and 26 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Weber in combination with Allen and further in combination with Schmidt and further in combination with Green.

None of the cited references provide incentive or suggestion to incorporate the polystyrene of Schmidt into the composition of Weber. Applicants respectfully request withdrawal of the rejection.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly,

reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-1131.

Respectfully submitted,

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